

WE CLAIM:

1. A computer-readable medium storing a program, said program directing a computer to measure an operational risk of an institution by executing the steps comprising of:

inputting multi-dimensional loss data, a plurality of analysis nodes thereby being formed by said multi-dimensional loss data, wherein a plurality of node inputs are provided corresponding to said analysis nodes;

selecting one of a plurality of advanced measurement approaches to model said loss data at said analysis nodes, wherein different of said advanced measurement approaches are selectable for different of said analysis nodes;

calculating said plurality of advanced measurement approaches, wherein multiple models of said loss data are calculable for each of said analysis nodes;

defining aggregations, said aggregations being defined by structures aggregating said analysis nodes;

calculating a value at risk of said aggregations, said calculated value at risk being calculated in response to said advanced measurement approaches selected for said analysis nodes; and

outputting said calculated value at risk.

2. The computer-readable medium according to claim 1, wherein said inputting step loads at least three-dimensional loss data.

3. The computer-readable medium according to claim 2, wherein said three dimensions comprises business lines, event types and organizational units.

4. The computer-readable medium according to claim 1, wherein said inputting step loads at least four-dimensional loss data.

5. The computer-readable medium according to claim 2, wherein said four dimensions comprises business lines, event types, organizational units and processes.

6. The computer-readable medium according to claim 1, wherein said advanced measurement approaches comprises at least a loss distribution approach and a scorecard approach.

7. The computer-readable medium according to claim 6, further comprising:

defining analysis units, said analysis nodes thereby being aggregated into said analysis units and said node inputs being provided by analysis unit inputs;

wherein said selecting step selects one of said plurality of advanced measurement approaches to model said loss data at said analysis units, different of said advanced measurement approaches being selectable for different of said analysis units;

wherein said multiple models of said step of calculating said plurality of advanced measurement approaches are calculable for each of said analysis units;

wherein said aggregations of said aggregating step are defined by structures aggregating said analysis units; and

wherein said step of calculating said value at risk is calculated in response to said advanced measurement approaches selected for said analysis units.

8. The computer-readable medium according to claim 6, wherein said inputting step loads at least internal and external loss data.

9. The computer-readable medium according to claim 7, wherein said inputting step further loads expert prior loss data.

10. The computer-readable medium according to claim 6, wherein said inputting step loads at least three-dimensional loss data, said three dimensions comprising business lines, event types and organizational units.

11. The computer-readable medium according to claim 10, wherein said business lines are structured according to investment banking, banking and others.

12. The computer-readable medium according to claim 11, wherein said business lines comprise corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services and custody, asset management and retail brokerage.

13. The computer-readable medium according to claim 10, wherein said event types comprise internal fraud, external fraud, employment practices and workplace safety, clients products and business practices, damage to physical

assets, business disruption and system failures, and execution delivery and process management.

14. The computer-readable medium according to claim 6, wherein said inputting step loads at least four-dimensional loss data, said four dimensions comprising business lines, event types, organizational units and processes.

15. The computer-readable medium according to claim 6, wherein said loss distribution approach comprises a loss distribution approach with insurance and a loss distribution approach without insurance.

16. The computer-readable medium according to claim 6, wherein said scorecard approach further comprises Bayesian transformations.

17. The computer-readable medium according to claim 6, wherein said scorecard approach comprises a scorecard approach on the basis of an internal measurement approach and a scorecard approach on the basis of a loss distribution approach.

18. The computer-readable medium according to claim 17, wherein said scorecard approach further comprises a scorecard approach on the basis of an internal measurement approach with insurance, a scorecard approach on the basis of an internal measurement approach without insurance, a scorecard approach on the basis of a loss distribution approach with insurance, and a scorecard approach on the basis of a loss distribution approach without insurance.

19. The computer-readable medium according to claim 18, wherein said scorecard approach on the basis of an internal measurement approach with insurance, said scorecard approach on the basis of an internal measurement approach without insurance, said scorecard approach on the basis of a loss distribution approach with insurance, and said scorecard approach on the basis of a loss distribution approach without insurance comprise Bayesian transformations.

20. The computer-readable medium according to claim 6, wherein said plurality of advanced measurement approaches further comprises an internal measurement approach.

21. The computer-readable medium according to claim 20, wherein said internal measurement approach comprises an internal measurement approach with insurance and an internal measurement approach without insurance.

22. The computer-readable medium according to claim 6, further comprising the step of model back-testing with at least two model back-testing procedures.

23. The computer-readable medium according to claim 22, further comprising the step of performing a sensitivity analysis.

24. The computer-readable medium according to claim 6, wherein said plurality of advanced measurement approaches further comprises a Bayesian updating mechanism comprising updating the tail parameter of a severity distribution in response to one of a scenario and external losses.

25. The computer-readable medium according to claim 6, wherein said inputting step loads at least internal and external loss data; wherein said inputting step loads at least three-dimensional loss data, said three dimensions comprising business lines, event types and organizational units; and wherein said scorecard approach further comprises Bayesian transformations.

26. The computer-readable medium according to claim 25, wherein said inputting step further loads expert prior loss data; wherein said business lines are structured according to investment banking, banking and others; wherein said business lines comprise corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services and custody, asset management and retail brokerage; wherein said event types comprise internal fraud, external fraud, employment practices and workplace safety, clients products and business practices, damage to physical assets, business disruption and system failures, and execution delivery and process management; and wherein said inputting step loads at least four-dimensional loss data, said four dimensions comprising business lines, event types, organizational units and processes.

27. The computer-readable medium according to claim 6, wherein said loss distribution approach comprises a loss distribution approach with insurance and

a loss distribution approach without insurance; wherein said scorecard approach further comprises a scorecard approach on the basis of an internal measurement approach with insurance, a scorecard approach on the basis of an internal measurement approach without insurance, a scorecard approach on the basis of a loss distribution approach with insurance, and a scorecard approach on the basis of a loss distribution approach without insurance; wherein said scorecard approach on the basis of an internal measurement approach with insurance, said scorecard approach on the basis of an internal measurement approach without insurance, said scorecard approach on the basis of a loss distribution approach with insurance, and said scorecard approach on the basis of a loss distribution approach without insurance comprise Bayesian transformations; wherein said plurality of advanced measurement approaches further comprises an internal measurement approach; wherein said internal measurement approach comprises an internal measurement approach with insurance and an internal measurement approach without insurance.

28. The computer-readable medium according to claim 27, wherein said inputting step loads at least internal and external loss data; wherein said inputting step further loads expert prior loss data; wherein said inputting step loads at least four-dimensional loss data, said four dimensions comprising business lines, event types, organizational units and processes; wherein said business lines are structured according to investment banking, banking and others; wherein said business lines comprise corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services and custody, asset management and retail brokerage; wherein said event types comprise internal fraud, external fraud, employment practices and workplace safety, clients products and business practices, damage to physical assets, business disruption and system failures, and execution delivery and process management; further comprising the step of model back-testing using at least two model back-testing procedures; further comprising the step of performing a sensitivity analysis; and wherein said plurality of advanced measurement approaches further comprises a Bayesian updating mechanism comprising updating the tail parameter of a severity distribution in response to one of a scenario and external losses.

29. A computer system for measuring an operational risk of an institution,

comprising:

a first means for loading multi-dimensional loss data, a plurality of analysis nodes being formed by said multi-dimensional loss data, wherein a plurality of node inputs are provided corresponding to said analysis nodes;

a second means for calculating a plurality of advanced measurement approaches comprising at least a loss distribution approach and a scorecard approach, said plurality of advanced measurement approaches thereby calculating multiple models of said loss data;

a third means for selecting one of said plurality of advanced measurement approaches to model said loss data at said analysis nodes, wherein different of said advanced measurement approaches are selectable for different of said analysis nodes;

a fourth means for defining aggregations, said aggregations being defined by structures aggregating said analysis nodes;

a fifth means for calculating a value at risk of said aggregations, said calculated value at risk being calculated in response to said advanced measurement approaches selected for said analysis nodes;

a sixth means for defining analysis units, said analysis nodes thereby being aggregated into said analysis units and said node inputs being provided by analysis unit inputs;

wherein said third means selects one of said plurality of advanced measurement approaches to model said loss data at said analysis units, different of said advanced measurement approaches being selectable for different of said analysis units;

wherein said aggregations of said fourth means are defined by structures aggregating said analysis units; and

wherein said calculated value at risk of said fifth means is calculated in response to said advanced measurement approaches selected for said analysis units.

30. A method implemented on a microprocessor for measuring operational risks, comprising:

loading loss data for an event type, wherein the event type comprises one of internal fraud, external fraud, employment practice, workplace safety, clients,

products, business practices, physical damage, business disruption and system failure, and execution, delivery, and process management;

- determining an expected event probability for the event type;

- calculating a capital charge in response to the expected event probability using an advanced measurement approach, wherein the advanced measurement approach comprises at least one of an internal measurement approach, a loss distribution approach, and a scorecard approach;

- calculating the impact of insurance coverage on the capital charge; and

- analyzing the loss data under at least one scenario.